

REMARKS

The Office Action dated February 26, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-26 are pending in the application. Claim 1 has been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter is added. Applicant submits the pending claims for consideration in view of the following.

Improper Finality

The finality of the pending Office Action is improper for failing to make a *prima facie* rejection under 35 U.S.C. §103(a).

On page 2, the Office Action rejected claims 1 and 6 under 35 U.S.C. §103(a) as being anticipated by Ishii (US 20040090215) in view of Hosotani et al. (US 2002/0181252). On pages 2-3, the Office Action alleged that Ishii and Hosotani disclose the features of claims 1 and 2. However, the Office Action fails to provide a reason why one of ordinary skill in the art would be motivated to combine Ishii and Hosotani to arrive at the invention of claims 1 and 6.

MPEP § 2143 states that “[t]he key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under

35 U.S.C. 103 should be made explicit” (emphasis added). Because the rejection lacks a clear articulation of the reasons why these features would allegedly have been obvious, the rejection cannot be supported per the requirements set forth by the United States Supreme Court.

In violation of the foregoing, the Office Action took the position that, in reference to claim 1, “it would have been obvious to...provide the teaching of Hosotani into the system of Ishii in order to provide a self-excited oscillation type switching power source.” Regardless of the validity of this assertion, “self-excited oscillation type switching power source” is the invention of Hosotani, not the invention of claims 1 and 6 (Hosotani, Abstract). As such, the assertion by the Office Action is irrelevant to establishing a *prima facie* case under 35 U.S.C. §103(a). Because this was the only motivation-like assertion, the Office Action failed to provide a clear articulation of the reasons why the claimed invention would have been obvious. Additionally, no reasoning was provided for claim 6. Therefore, the Office Action failed to make a *prima facie* rejection under 35 U.S.C. §103(a), and the finality of the pending Office Action must be withdrawn.

§103(a) Rejections

Claims 1 and 6 were rejected under 35 U.S.C. §103(a) as being anticipated by Ishii (US 20040090215) in view of Hosotani et al. (US 2002/0181252). The Office Action took the position that Ishii fails to disclose or suggest “wherein the first switch is coupled

to a capacitance configured to hold a bias when said second switch comprises the ON state.” However, the Office Action also took the position that Hosotani remedies the deficiencies of Ishii in a manner that renders the limitations of claims 1 and 6 obvious to one of ordinary skill in the art. Applicant respectfully asserts that claims 1 and 6 are not obvious to one of ordinary skill in the art.

Claim 1, upon which claim 6 depends, is generally directed to a charge pump circuit to supply current to a controlled oscillating circuit. The charge pump circuit includes a first switch that includes a first state and is coupled to a gate of an output diode. The charge pump circuit also includes a second switch that includes a second state opposite from said first state and is coupled to a source of the output diode. The second switch provides a charge up current to the output diode when the second state comprises an ON state, and the first switch is coupled to a capacitance that holds a bias when the second switch comprises the ON state, and the output diode is configured to provide a charge up current to an offset current.

The foregoing claim recites limitations that are not disclosed or suggested by a combination of Ishii and Hosotani.

Ishii discloses a DC-DC converter. The Ishii DC-DC converter is disclosed as having a step-down converter 51, a step-up converter 52, and a control section 53. Ishii discloses that the step-down converter 51 includes a first switch 2 and a first diode 3, and the step-up converter 52 includes a second switch 5 and a second diode 6. The step-down converter 51 and the step-up converter 52 share an inductor 4. The DC-DC converter 50

also includes a capacitor 7. The step-down converter 51 and step-up converter 52 receive a direct current voltage and operate to modify the direct current voltage, in accordance with commands from the control section 53, to produce a controlled direct current voltage to a load 8.

Hosotani discloses a power source that increases voltage. When the voltage exceeds a predetermined voltage, a first transistor is turned on, and a second transistor is turned off. Then, a first switching element is turned on, and voltage is developed in a first drive winding. The voltage is sent back via a feedback circuit, and the transistor is accelerated to reach an on-state. The second transistor is acculturated to reach an off-state. As a result, the first switching element is rapidly turned on, and the oscillation is started.

However, a combination of Ishii and Hosotani fails to disclose or suggest, at least, “a second switch...coupled to a source of the output diode, wherein the second switch provides a charge up current to the output diode when the second state comprises an ON state...and wherein the output diode is configured to provide the charge up current to an offset current,” as recited in claim 1.

Instead, in paragraph [0081] of Ishii, when the first switch 2 is in an ON state and the second switch 5 is in an OFF state, the second diode 6 turns to an ON state. During such a state of operation, the current flows from the direct current input power source 1 to the output capacitor 7 via the inductor 4. Ishii also discloses that by repeating the operation of storage and release of magnetic energy, electric power is supplied from the

output capacitor 7 to the load 8. However, Ishii fails to disclose an output diode that receives a charge up current from a second switch and provides the charge up current to an offset current as recited in claim 1.

Paragraphs [0078]-[0079] also describe operations of the Ishii converter 50, but these paragraphs present conditions where the first switch 2 and the second switch are both in an ON state, which is contrary to the “state opposite from” limitation of claim 1. On pages 2-3, the Office Action appears to rely upon paragraphs [0067]-[0069] of Ishii to anticipate all the limitations of claim 1. However, a review of these paragraphs demonstrates that paragraphs [0067]-[0069] do not disclose or suggest, at least, “a second switch...coupled to a source of the output diode, wherein the second switch provides a charge up current to the output diode when the second state comprises an ON state...and wherein the output diode is configured to provide the charge up current to an offset current,” as recited in claim 1. Instead, these paragraphs provide a general description of the Ishii DC-DC converter, without reference to the foregoing limitations.

Similarly, Hosotani fails to disclose “a second switch...coupled to a source of the output diode, wherein the second switch provides a charge up current to the output diode when the second state comprises an ON state...and wherein the output diode is configured to provide the charge up current to an offset current,” as recited in claim 1. Instead, Hosotani discloses a self-excited oscillation type switching power source device that includes a start-stop circuit without disclosing the foregoing limitations or otherwise

remedying the deficiencies of Ishii. Therefore, a combination of Ishii and Hosotani fails to disclose or suggest all the limitations of claim 1 for at least the foregoing reasons.

Additionally, a combination of Ishii and Hosotani fails to disclose or suggest, at least, “wherein the first switch disconnects the gate of the output diode when said first state comprises an OFF state,” as recited in claim 6.

As discussed above, Ishii discloses that when a first switch 2 is in an ON state and a second switch 5 is in an OFF state, the second diode 6 turns to an ON state. During such a state of operation, a current flows from a direct current input power source 1 to a output capacitor 7 via an inductor 4. Ishii also discloses that by repeating the operation of storage and release of magnetic energy, electric power is supplied from the output capacitor 7 to the load 8. However, Ishii fails to disclose that “the first switch disconnects the gate of the output diode when said first state comprises an OFF state,” as recited in claim 6. As described in paragraphs [0034] and [0045] of the Specification, disconnecting the first switch and the gate of the output diode may serve to protect the charge up current from bias signals such as current or voltage, thereby avoiding variations in the charge up current.

Similarly, Hosotani fails to disclose these limitations or otherwise remedy the deficiencies of Ishii with respect to claim 6. Instead, Hosotani discloses that a first switching element may be turned on while a second switching element is turned off. However, Hosotani fails to disclose that, for example, the second switching element is disconnected from a gate of an output diode when the first switching element is turned

on. Therefore, a combination of Ishii and Hosotani fails to disclose the limitations of claim 6 for at least these reasons.

Furthermore, one of ordinary skill in the art would not be motivated to combine Ishii and Hosotani to arrive at the claimed invention because doing so would be technologically impossible.

As mentioned above, in paragraph [0081] of Ishii, when the first switch 2 is in an ON state and the second switch 5 is in an OFF state, the second diode 6 turns to an ON state. During such a state of operation, the current flows from the direct current input power source 1 to the output capacitor 7 via the inductor 4. Ishii also discloses that by repeating the operation of storage and release of magnetic energy, electric power is supplied from the output capacitor 7 to the load 8.

The Office Action essentially attempts to insert/replace the switches and capacitor of Hosotani into the voltage converter of Ishii. However, the Office Action fails to provide a reasonable manner of combining Ishii and Hosotani in light of the fact that Ishii already discloses precise configurations and operations between the first switch 2, the second switch 5, the first diode 3, the second diode 6, and the capacitor 7 that function to perform the operations for which Ishii was designed. Accordingly, it would be technologically impossible to add the features of Hosotani to Ishii without undermining the fundamental operations and functions of Ishii. Therefore, one of ordinary skill in the art would have no motivation to modify Ishii with Hosotani to arrive at the claimed invention.

As mentioned above, the Office Action took the position that, regarding claim 1, “it would have been obvious to...provide the teaching of Hosotani into the system of Ishii in order to provide a self-excited oscillation type switching power source.” Regardless of the validity of this assertion, “self-excited oscillation type switching power source” is the invention of Hosotani, not the invention of claims 1 and 6 (Hosotani, Abstract). As such, the assertion by the Office Action is irrelevant to establishing a *prima facie* case under 35 U.S.C. §103(a). The Office Action provided no rationale for combining Ishii and Hosotani and Ishii to arrive at claim 6.

In light of all of the above, a combination of Ishii and Hosotani fails to disclose or suggest all the limitations of claims 1 and 6, and one of ordinary skill in the art would not be motivated to combine Ishii and Hosotani to arrive at the invention of claims 1 and 6. Therefore, Applicant respectfully request that the rejection of claims 1 and 6 be withdrawn.

Claims 2-3 and 7-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ishii in view of Hosotani and Kinbara (US 6,259,714). Regarding claims 2-3, the Office Action took the position that Ishii and Hosotani fails to disclose that the first and second switches are each a diode having different semiconductor material. Regarding claims 7-8, the Office Action took the position that Ishii fails to disclose that the first and second switches include an n-channel and p-channel metal oxide semiconductor. However, the Office Action also took the position that these limitations are presented by Kinbara in a manner that would render the claimed invention obvious. This rejection is

traversed on at least the grounds that a combination of Ishii and Kinbara fails to disclose or suggest all the limitations of claims 2-3 and 7-8.

A discussion of a combination of Ishii and Hosotani with respect to claim 1, from which claims 2-3 and 7-8, is presented above. Kinbara discloses a power source controller. In the Kinbara controller, a current switching circuit includes a first and second switching element connected to a laser diode. The current switching circuit turns on the first switching element while turning off the second switching element when a laser output command signal is off, thereby circulating a current from a constant current source within the current switching circuit through the first switching element. Also, the current switching circuit turns on the second switching element while turning off the first switching element when the laser output command signal is on, thereby outputting the current from the constant current source to the laser diode through the second switching element.

However, Kinbara, similar to Ishii and Hosotani, fails to disclose or suggest, at least, “a second switch...coupled to a source of the output diode, wherein the second switch provides a charge up current to the output diode when the second state comprises an ON state...and wherein the output diode is configured to provide the charge up current to an offset current,” as recited in claim 1.

Accordingly, a combination of Ishii, Hosotani, and Kinbara fails to disclose or suggest all the limitations of claim 1, from which claims 2-3 and 7-8 depend. Additionally, Kinbara fails to remedy the lacking motivation for combining Ishii and

Hosotani presented above. Therefore, Applicants respectfully request that the §103(a) rejection of claims 2-3 and 7-8 be withdrawn for the dependency of claims 2-3 and 7-8 from claim 1, and for the patentable subject matter recited therein.

Conclusion

The foregoing comments made with respect to the positions presented in the Office Action are not to be construed as acquiescence with other positions presented in the Office Action that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of the claim or other claims. Additionally, the Applicant does not acquiesce that the cited art anticipates or renders obvious any of the claims as previously presented, and reserve the right to pursue any of the previously presented claims in a subsequent application.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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